Montana Department of
ENVIRONMENTAL QUALITY
Brian Schweitzer, Governor
P. O. Box 200901 Helena, MT 59620-0901 (406) 444-2544 Website: www.deq.mt.gov

March 20, 2012

Jill Linn
Williston Basin Interstate Pipeline Company
Baker Booster and Sandstone Creek Compressor Stations
2010 Montana Avenue
Glendive, MT 59330

Dear Ms. Linn:

The Department of Environmental Quality (Department) has made its decision on the Montana Air Quality Permit application for Williston Basin Interstate Pipeline Company - Baker Booster and Sandstone Creek Compressor Stations. The application was given permit number 3301-03. The Department's decision may be appealed to the Board of Environmental Review (Board). A request for hearing must be filed by April 19, 2012. This permit shall become final on April 5, 2012, unless the Board orders a stay on the permit.

Procedures for Appeal: Any person jointly or severally adversely affected by the final action may request a hearing before the Board. Any appeal must be filed before the final date stated above. The request for a hearing shall contain an affidavit setting forth the grounds for the request. Any hearing will be held under the provisions of the Montana Administrative Procedures Act. Submit requests for a hearing in triplicate to: Chairman, Board of Environmental Review, P.O. Box 200901, Helena, Montana 59620.

Conditions: See attached.

For the Department,

Vickie Walsh
Air Permitting Program Supervisor
Air Resources Management Bureau
(406) 444-9741

Doug Kuenzli
Environmental Science Specialist
Air Resources Management Bureau
(406) 444-4267

VW:DCK
Enclosure

MONTANA AIR QUALITY PERMIT

Issued To: Williston Basin Interstate Pipeline Company
Baker Booster and Sandstone Creek
Compressor Stations
2010 Montana Avenue
Glendive, MT 59330

MAQP: #3301-03
Application Complete: 01/18/2012
Preliminary Determination Issued: 02/15/2012
Department Decision Issued: 03/20/2012
Permit Final:
AFS: #025-0013

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to the Williston Basin Interstate Pipeline Company – Baker Booster and Sandstone Creek Compressor Stations (WBI), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq*., as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

WBI owns and operates the Baker Booster and Sandstone Creek Compressor Stations. The facility is a natural gas booster and transmission compressor station. The WBI station is located approximately 1.5 miles north of Baker, Montana, in the Northeast ¼ of Section 2, Township 7 North, Range 59 East, in Fallon County. A complete list of the permitted equipment is contained in Section I.A of the permit analysis.

B. Current Permit Action

On January 18, 2012, the Montana Department of Environmental Quality (Department) received a permit modification request from WBI proposing the installation of one additional 1680 brake horsepower (bhp) capacity Waukesha compressor engine to the existing compressor engines for the purpose of providing natural gas gathering services at the Baker Booster Station. The proposed engine will be identified as Booster LP1a. In addition to these changes, this permit action updates insignificant emission units list, current rule references, permit format, and the emissions inventory.

SECTION II: Conditions and Limitations

A. Emission Limitations

1. Emissions from each of the seven (7) 1,680 bhp Waukesha compressor engines (rich-burn) at the Baker Booster and Sandstone Creek Compressor Stations, shall be controlled by a non-selective catalytic reduction (NSCR) unit and an air to fuel ratio (AFR) controller. Emissions from each of the engines shall not exceed the following limits:

NO_x[1]	3.70 lb/hr (ARM 17.8.752)
CO	4.44 lb/hr (ARM 17.8.752)
VOC	1.85 lb/hr (ARM 17.8.752)

2. WBI shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

1 NO_x reported as NO_2

3. WBI shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

4. WBI shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions limitation in Section II.A.3 (ARM 17.8.749).

5. WBI shall operate and maintain non-selective catalytic reduction (NSCR) and an air-to-fuel ratio (AFR) controller on each engine (ARM 17.8.749).

6. WBI shall comply with any applicable standards, limitations, reporting, recordkeeping, and notification requirements contained in Title 40 Code of Federal Regulations (40 CFR) 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (ARM 17.8.340, 40 CFR 63, Subpart ZZZZ).

B. Testing Requirements

1. The proposed Booster Unit LP1a shall be initially tested for NO_x and CO to demonstrate compliance with emissions limits in Section II.A.1. Testing shall be conducted within 180 days of the initial startup date of Booster Unit LP1a (ARM 17.8.105 and ARM 17.8.749).

2. Each of the seven (7) 1,680 bhp Waukesha compressor engines shall be tested for NOx and CO, concurrently, to demonstrate compliance with the emissions limits in section II.A.1. Testing shall continue on an every 4-year basis, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

3. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

4. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. WBI shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. WBI shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a ***the addition of a new emissions unit***, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new

emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

3. All records compiled in accordance with this permit must be maintained by WBI as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

D. Notification

WBI shall provide the Department (both the Billings regional office and the Helena office) with written notification of the following information within the specified time periods (ARM 17.8.749).

1. WBI shall provide the Department with written notification of commencement of construction of the Booster Unit LP1a within 30 days after commencement of construction.

2. WBI shall provide the Department with the actual start-up date of the Booster Unit LP1a within 15 days after the actual start-up date of the engine.

SECTION III: General Conditions

A. Inspection – WBI shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (Continuous Emissions Monitoring System (CEMS), Continuous Emission Rate Monitoring System (CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if WBI fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving WBI of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*. (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement action as specified in Section 75-2-401, *et seq*., MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's

decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by WBI may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit (MAQP) Analysis
Williston Basin Interstate Pipeline Company
Baker Booster and Sandstone Creek Compressor Stations
MAQP #3301-03

I. Introduction/Process Description

Williston Basin Interstate Pipeline Company (WBI) owns and operates the Baker Booster and Sandstone Creek Compressor Stations. The facility is a natural gas booster and transmission compressor station(s) located approximately 1.5 miles north of Baker, Montana, in the Northeast ¼ of Section 2, Township 7 North, Range 59 East in Fallon County.

A. Permitted Equipment

The facility consists of the following equipment:

- Seven (7) 1,680 brake horsepower (bhp) Waukesha 7044 GSI compressor engines. Four (4) of the engines operate at the Baker Booster Station for the purpose of natural gas gathering. Three (3) engines operate at the adjacent Sandstone Creek Compressor Station for the purpose of natural gas transmission.
- Triethylene glycol (TEG) Reboiler and TEG dehydration process vent with a heat input capacity of 0.75 million British thermal units per hour (MMBtu/hr).
- Miscellaneous small heating equipment, that includes;
  - → Modine 0.2 MMBtu/hr shop heater
  - → AO Smith .032 MMBtu/hr water heater
  - → Weil-McLain 0.155 MMBtu/hr boiler
  - → Mr. Heater MHU45 0.045 MMBtu/hr shop heater
- Miscellaneous support equipment and materials equipment.

B. Source Description

The WBI facility is a natural gas booster and transmission compressor station. The Baker Booster compressor units draw natural gas directly from the production field. The natural gas at the WBI station is dehydrated and compressed for transmission through long-haul pipelines for transport to natural gas markets. The TEG unit is used to remove moisture from the wet gas drawn at the production field and the seven compressor engines are used to boost pipeline pressure for transmitting the natural gas through the pipeline.

C. Permit History

On April 27, 2004, WBI was issued **MAQP #3301-00** for the installation and operation of five 1,680 bhp Waukesha 7044 GSI compressor engines, a glycol dehydration unit with a heat input capacity of 0.75 MMBtu/hr, and miscellaneous support equipment. The permitted facility was constructed and operated for the purpose of natural gas gathering activities under Standard Industrial Classification (SIC) Code 1311 and North American Industry Classification System (NAICS) Code 211111.

On March 22, 2007, the Montana Department of Environmental Quality-Air Resources Management Bureau (Department) received a request from WBI to administratively amend MAQP #3301-00. Specifically, WBI permitted five, 1680 bhp capacity Waukesha compressor engines for the purpose of providing natural gas gathering services at the Baker Booster Compressor Station. WBI proposed to continue to maintain the five previously permitted engines; however, WBI dedicated two of the engines for the purpose of natural gas transmission services under SIC 4922 and NAICS Code 486210. The two engines used for transmission

services are located within the Baker Booster Tract and adjacent to the existing Baker Booster Compressor Station. The new adjacent station was designated the Sandstone Creek Compressor Station and the affected engines were named Sandstone Creek Unit #1 and Sandstone Creek Unit #2. The overall permitted facility is referred to as the WBI Baker Booster and Sandstone Creek Compressor Stations. All limits and conditions established under MAQP #3301-00 and applicable to the affected Waukesha engines remained the same. **MAQP #3301-01** replaced MAQP #3301-00.

On January 10, 2011, the Department received a permit modification request from WBI with additional information received on February 25, 2011. With this permit action, WBI proposed to add one additional 1,680 bhp Waukesha compressor engine to five existing 1,680 bhp compressor engines. The new engine was added to the Sandstone Creek Compressor Station and the affected engine was named Sandstone Creek Unit #3. In addition to these changes, this permit action updated rule references used by the Department, permit format, and the emission inventory. **MAQP #3301-02** replaced MAQP #3301-01.

D. Current Permit Action

On January 18, 2012, the Department received a permit modification request from WBI proposing the installation of one additional 1,680 bhp capacity Waukesha compressor engine to the Baker Booster Station for the purpose of providing natural gas gathering services. The new engine will be added to the existing Baker Compressor Station and the affected engine will be identified as Booster LP1a. In addition to these changes, this permit action updates insignificant unit list, current rule references, permit format, and the emissions inventory.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary, using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

WBI shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly, by telephone, whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide (SO_2)
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide (NO_2)
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide (CO)
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone (O_3)
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide (H_2S)
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter (PM)
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for Particulate Matter with an Aerodynamic Diameter of Ten Microns or Less (PM_{10})

WBI must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precaution are taken to control emissions of airborne particulate matter. (2) Under this rule, WBI shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (4) Commencing July 1, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 pound of sulfur per MMBtu fired. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. WBI will burn natural gas in its fuel burning equipment, which will meet this limitation.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule

7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is an NSPS affected source because it meets the definition of an NSPS subpart defined in 40 CFR Part 60.

    a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:

    b. 40 CFR 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. The provisions of this subpart are applicable to owners and operators of stationary spark ignition internal combustion engines (SI ICE) that commence construction after June 12, 2006, where the stationary SI ICE are manufactured on or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 horsepower. At this time, WBI is not subject to this subpart because all the engines were manufactured prior to July 1, 2007.

    c. 40 CFR 60, Subpart KKK – Standards of Performance for Equipment leaks of VOC from Onshore Natural Gas Processing Plants. The provisions of this subpart apply to affected facilities in onshore natural gas processing plants. Natural gas processing plant (gas plant) is defined in this subpart as any processing site engaged in the extraction of natural gas liquids from field gas, fractionation of mixed natural gas liquids to natural gas products, or both. Therefore, WBI is not subject to this subpart.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. A major Hazardous Air Pollutant (HAP) source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as applicable, including the following subparts:

    a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an New Emissions Standard for Hazardous Air Pollutants (NESHAP) Subpart as listed below:

    b. 40 CFR 63, Subpart HH - National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities. This subpart applies to the owners and operators of the emission points, specified in paragraph (b) of this section that are located at oil and natural gas production facilities that meet the specified criteria in paragraphs (a)(1) and either (a)(2) or (a)(3) of this section. The TEG dehydration unit at WBI's facility receives natural gas directly from the production field prior to processing. Therefore, the facility may be subject to the area source requirements in 40 CFR 63, Subpart HH.

c. 40 CFR 63, Subpart HHH - National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities. This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutant (HAP) emissions as defined in 40 CFR Part 63.1271. WBI is not a major source of HAP emissions; therefore, this subpart does not apply.

d. 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE). An owner or operator of a stationary RICE at a major or area source of HAP emissions is subject to this subpart, except if the stationary RICE is being tested at a stationary RICE test cell/stand. Therefore, WBI is subject to this subpart.

D. ARM 17.8, Subchapter 4 – Stack Height and Dispersion Techniques, including, but not limited to:

1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.402 Requirements. WBI must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The proposed heights of all stacks for the WBI engines are below the allowable 65-meter GEP stack height.

E. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an MAQP application. A permit application is incomplete until the proper application fee is paid to the Department. WBI submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 When Permit Required--Exclusions. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an MAQP (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an MAQP application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

F. ARM 17.8, Subchapter 7 – Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an MAQP t or permit modification to construct, modify, or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year (tpy) of any pollutant. WBI has the potential to emit more than 25 tpy of oxides of nitrogen (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC); therefore, an MAQP is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the MAQP program.

4. ARM 17.8.745 Montana Air Quality Permits -- Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that are not subject to the MAQP Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. WBI submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. WBI submitted an affidavit of publication of public notice for the January 13, 2012, issue of the *Fallon County Times*, a newspaper of general circulation in the Town of Baker in Fallon County, Montana, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving WBI of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

G. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because this facility is not a listed source and the facility's PTE is below 250 tpy of any pollutant.

H. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

a. PTE > 100 tpy of any pollutant;

b. PTE > 10 tpy of any single hazardous air pollutant (HAP), PTE > 25 tpy of any combination of HAPs, or lesser quantity as the Department may establish by rule; or

c. PTE > 70 tpy of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #3301-03 for WBI, the following conclusions were made:

   a. The facility's PTE is > 100 tpy for CO and NO_x.

   b. The facility's PTE is less than 10 tpy of any single HAP and less than 25 tpy of combined HAPs.

   c. This source is not located in a serious PM_{10} nonattainment area.

   d. This facility is not currently subject to NSPS.

   e. This facility is subject to NESHAP standards (40 CFR 63, Subparts HH and ZZZZ).

   f. This source is not a Title IV affected source.

   g. This source is not a solid waste combustion unit.

   h. This source is not an EPA designated Title V source.

   Based on these facts, the Department determined that WBI is subject to the Title V Operating Permit Program. WBI became subject to the Title V Operating Permit Program with the installation of Sandstone Creek Unit #3 (MAQP #3301-02) and was required to submit an application for a Title V Operating Permit within 12 months of commencing operation of Unit #3. The initial application for an Air Quality Operating Permit was submitted concurrently with air quality permit application #3301-03.

III. BACT Determination

A BACT determination is required for each new or modified source. WBI shall install on the new or modified source the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized.

WBI currently operates six rich burn Waukesha 7044 GSI compressor engines at this facility. Under the current permit action, WBI proposes the addition of another rich-burn Waukesha 7044 GSI natural gas compressor engines (1,680 bhp) utilizing non-selective catalytic reduction (NSCR) and an air-to-fuel ratio (AFR) controller to achieve BACT. WBI previously indicated that 96% to 98% engine run time is required to supply the natural gas companies serviced by this station. The following BACT analysis addresses available methods for controlling NO_x and CO emissions from technically feasible internal combustion engine technologies used to compress natural gas for the purpose of transmission. The Department reviewed previous BACT determinations for compressor engines before making the following BACT determination.

A. No Additional Controls

This practice would consist of operating available natural gas compressor engines without any add-on pollution control equipment.

Internal combustion engine operating with no additional controls is a technically feasible option for the compression and transmission of natural gas, as proposed by WBI. Using this approach would result in no additional energy or economic impacts associated with control equipment; however, no additional controls would result in negative impacts on air quality due to increased

NO_x and CO emissions when compared to other existing and technically feasible control options. Therefore, the Department determined that 'no additional controls' would not constitute BACT for the proposed natural gas compressor engine at WBI.

B. Lean-Burn Engine: AFR controller

The lean-burn engine uses a pre-combustion chamber to enclose a rich mixture of air and fuel; the mixture is then ignited in this chamber. The resulting ignition front fires into the larger main cylinder that contains a much leaner fuel mixture. Staging the combustion and burning a leaner fuel mixture results in lowering of peak flame temperatures. Lower combustion temperature results in lower NO_x concentration in the exhaust gas stream; however, excess air in the fuel/air mixture can result in increased CO emissions.

The NO_x and CO emissions from a lean-burn engine can be stabilized by installing an electronic AFR controller. This device maintains the proper air-to-fuel ratio that will optimize the performance of the lean burn engine. A lean-burn engine with an AFR controller achieves approximately the same reduction in NO_x and CO emissions as a rich-burn engine fitted with an NSCR unit and an AFR controller.

Lean-burn engines with AFR control have a higher initial cost when compared to rich-burn engines fitted with an NSCR unit and an AFR controller. However, since there is limited add-on equipment, the lean-burn engine requires far less maintenance than a rich-burn engine fitted with an NSCR unit and an AFR controller. Consequently, operation of the lean burn engine typically results in less technical difficulty, down time and lower operating costs.

However, since this facility currently operates all rich-burn engines and WBI proposes to add an identical engine (1,680-bhp, rich-burn engine) to those previously permitted, the Department determined that the use of lean-burn engine with an AFR controller would not constitute BACT in this case.

C. Lean-Burn Engine: Selective Catalytic Reduction (SCR) Unit

SCR is a post-combustion emission control technology that has been shown to be effective in reducing NO_x emissions from lean-burn engines. SCR units can achieve NO_x control efficiencies as high as 90% for lean-burn engines that are operated at a constant load. An SCR unit selectively reduces NO_x emissions by injecting either liquid anhydrous ammonia or aqueous ammonium hydroxide into the exhaust gas stream prior to the gas stream reaching the catalyst. The catalyst is typically made from noble metals, base metal oxides such as vanadium and titanium, and zeolite-based material. NO_x, ammonia (NH_3), and oxygen (O_2) react on the surface of the catalyst to form nitrogen (N_2) and water (H_2O). For an SCR unit to operate properly, the exhaust gas must be within a particular temperature range (typically between 450 degrees Fahrenheit (°F) and 850°F). The catalyst that is utilized dictates the temperature range. Exhaust gas temperatures greater than the upper limit will pass the NO_x and NH_3 through the catalyst prior to the reaction. NH_3 emissions, or ammonia slip, are a key consideration when specifying an SCR unit.

While an SCR unit can be utilized to effectively reduce NO_x emissions, CO emissions are typically increased with lean-burn technology. Further, the proposed project would operate at variable loads thereby creating technical difficulties such as periods of ammonia slip or periods of insufficient ammonia injection. Because of the high oxygen concentration, associated with lean-burn engine operation and required for proper SCR utilization, SCR units are only applicable to lean-burn engines.

Since this facility currently operates all rich-burn engines and WBI proposes to add an identical engine (1,680 bhp, rich-burn engine) to those engines previously permitted, the Department determined that the use of lean-burn engine with a SCR Unit would not constitute BACT in this case.

D. Lean-Burn Engine: SCR with Catalytic Oxidation

Catalytic Oxidation is a post combustion technology that has been applied to oxidize CO emissions from lean-burn engines. As mentioned, lean-burn technologies may cause increased CO emissions. In a catalytic oxidation system, CO passes over a catalyst, usually a noble metal, which oxidizes the CO to carbon dioxide (CO_2) at efficiencies of 70-90%.

An oxidation catalyst may be used in conjunction with an SCR unit to effectively reduce CO emissions; however, as with an SCR unit, oxidation catalysts are only applicable to lean-burn engines because a high oxygen concentration is needed for the unit to operate properly. Further, SCR units are not effective on engines which operate at variable loads (such as natural gas compressor engines). Due to technical difficulties arising from this type of operation and since this facility currently operates all rich-burn engines, the Department determined that the use of lean-burn engine employing SCR with catalytic oxidation control would not constitute BACT in this case.

E. Rich-Burn Engine: AFR Controller (NOx Control at the Crossover Point)

Under this control strategy, the proper air-to-fuel ratio is obtained by adjusting the engine to operate at the crossover point, where NO_x and CO emissions are equal. At the crossover point, the engine operates neither too lean nor too rich. Excess hydrocarbon in a rich fuel mixture results in incomplete combustion thereby lowering the exhaust temperature to a point where the concentration of NO_x decreases and the concentration of CO increases. Conversely, combustion of a lean fuel mixture occurs at higher temperatures accompanied by higher concentration of NO_x and a lower concentration of CO.

Internal combustion engines can operate manually at the crossover point; however, the engine must be tuned frequently to account for operational changes such as varying engine load, operating temperature, fuel gas quality, etc. The proposed project requires engine run time exceeding 96% and the use of an AFR controller with no additional control may present technical difficulties that result in decreased run time thus leading to project infeasibility. Further, while the use of an AFR controller to adjust the engine to operate at the crossover point results in a reasonable reduction of both NO_x and CO emissions, an AFR controller operated without additional control does not provide for a reduction in NO_x and CO emissions as effectively as other control strategies; such as an NSCR unit or an NSCR unit operated in conjunction with an AFR controller (discussed below). Therefore, the Department determined that an AFR controller, operated alone, would not constitute BACT in this case.

F. Rich-Burn Engine: NSCR Unit

An NSCR unit controls NO_x emissions by using available CO and residual hydrocarbons in the exhaust of a rich-burn engine as a NO_x reducing agent. Without the catalyst, in the presence of oxygen, the hydrocarbons will be oxidized instead of reacting with NO_x. As the excess hydrocarbon and NO_x pass over a honeycomb or monolithic catalyst (usually a combination of noble metals such as platinum, palladium, and/or rhodium), the reactants are reduced to N_2, H_2O, and CO_2. The noble metal catalyst usually operates between 800 °F and 1,200°F; therefore, the unit would normally be mounted near the engine exhaust to maintain a high enough temperature to allow the various reactions to occur. In order to achieve maximum performance, 80% to 90% reduction of NO_x concentration, the engine must burn a rich fuel mixture, causing the engine to operate less efficiently.

Similar to the use of an AFR controller alone, the use of an NSCR unit alone can be used effectively to reduce NO_x and CO emissions. However, the loss of engine operating efficiency and increased fuel use, resulting from burning a rich-fuel mixture is not economically feasible. Subsequently, an NSCR unit operated alone does not provide a sufficient reduction in NO_x and CO emissions as compared to other technically feasible control options. Therefore, the Department determined that an NSCR unit, alone, does not constitute BACT for the natural gas compressor engines.

G. Rich Burn Engine: NSCR unit with an AFR Controller

In order to provide for the most effective use of the catalyst in an NSCR unit, it is also necessary to install an AFR controller. An AFR controller maintains the proper air-to-fuel ratio thereby maintaining fuel efficiency, optimizing the level of reducing agents, and minimizing agents that can poison the catalyst, thus providing for the maximum NO_x and CO emission reduction and limiting technical difficulties such as engine down time.

As proposed by WBI, the Department concurs that an NSCR unit with an AFR controller constitutes BACT in the reduction of NO_x and CO emissions from the operation of the proposed natural gas compressor engine. NSCR/AFR control typically constitutes BACT for rich-burn compressor engines. Four-stroke, rich burn engines equipped with NSCR/AFR controls generally can obtain up to 90% reduction in NO_x, and 80-85% reduction in CO emissions. Therefore, NSCR/AFR provides effective control and represents a technically, economically, and environmentally feasible option for the control of NOx and CO resulting from internal combustion engines, as those proposed for the current permit action. Therefore, the Department has determined that the 1,680 bhp, rich-burn engine utilizing NSCR and AFR constitutes BACT.

H. Summary

NSCR/AFR control effectively reduces NO_x and CO emissions, and said control typically constitutes BACT for rich-burn compressor engines. The control options selected have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emissions standards.

In establishing emission limits, the Department considered the primary criteria pollutants from natural gas-fired reciprocating engines to be NO_x, CO, and VOC. CO and VOC emissions are principally the result of incomplete combustion. Additional criteria pollutants emissions include PM and SO_2. PM emissions include trace amounts of metals, non-combustible inorganic material, and condensable, semi-volatile organics resulting from volatized lubricating oil, engine wear, or from products of incomplete combustion. SO_2 emissions are very low since sulfur compounds are removed from natural gas in forming pipeline quality natural gas. However, trace amounts of sulfur containing odorants are added to pipeline quality natural gas for the purpose of leak detection.

Based on manufacturers performance specifications of compressor engine and control equipment the Department has established BACT emission limits for NO_x, CO, and VOCs as follows: BACT NO_x emission limit of 3.70 lb/hr (1 gram (g)/bhp-hr); BACT CO emission limit of 4.44 lb/hr (1.2 g/bhp-hr) and VOC BACT emission limit of 1.85 lb/hr (0.5 g/bhp-hr). The Department determined that the proposed 1,680 bhp Waukesha rich-burn natural gas compressor engines operating with NSCR/AFR are capable of meeting these BACT limits while maintaining operational requirements deemed necessary for the proposed project.

IV. Emission Inventory

	Emissions Tons/Year [PTE]									
									HAPS [(a)]	
	PM	PM_{10}	$PM_{2.5}$	PM_{cond}	CO	NOx	SO_2	VOC	Total	CH_2O
1,680 bhp Waukesha Compressor Engine - Unit #1	1.12	1.12	1.12	0.57	19.47	16.21	0.03	8.10	1.88	1.19
1,680 bhp Waukesha Compressor Engine - Unit #2	1.12	1.12	1.12	0.57	19.47	16.21	0.03	8.10	1.88	1.19
1,680 bhp Waukesha Compressor Engine - Unit #3	1.12	1.12	1.12	0.57	19.47	16.21	0.03	8.10	1.88	1.19
1,680 bhp Waukesha Compressor Engine - Unit #4	1.12	1.12	1.12	0.57	19.47	16.21	0.03	8.10	1.88	1.19
1,680 bhp Waukesha Compressor Engine - Unit #5	1.12	1.12	1.12	0.57	19.47	16.21	0.03	8.10	1.88	1.19
1,680 bhp Waukesha Compressor Engine - Unit #6	1.12	1.12	1.12	0.57	19.47	16.21	0.03	8.10	1.88	1.19
1,680 bhp Waukesha Compressor Engine - Unit #7	1.12	1.12	1.12	0.57	19.47	16.21	0.03	8.10	1.88	1.19
TEG Reboiler [0.75 MMBtu/hr]	0.03	0.03	0.03	0.02	0.28	0.34	0.002	0.019	0.009	--
TEG Dehydration Still Vent	--	--	--	--	--	--	--	2.51	0.32	--
Misc. Heaters [0.432 MMBtu/hr combined capacity]	0.015	0.015	0.015	0.011	0.16	0.19	0.001	0.01	0.022	--
EMISSION TOTALS ►	7.91	7.91	7.91	4.05	136.74	113.97	0.24	59.26	13.50	8.32

(a) HAP emission data represents total combined HAP's and the highest single HAP [CH2O→Formaldehyde].

BACT, Best Available Control Technology
bhp, brake-horsepower
Btu, British Thermal Units
CH_2O, formaldehyde
CO, carbon monoxide
Ft^3, cubic feet
g, gram
HAP, hazardous air pollutant
lb. pound
MMBtu, million British Thermal Units
MMscf, million standard cubic feet
NO_X, oxides of nitrogen
PTE, Potential To Emit
PM, particulate matter
PM_{COND}, condensable particulate matter
PM_{10}, particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$, particulate matter with an aerodynamic diameter of 2.5 microns or less [Sum of condensable and filterable]
SO_2, oxides of sulfur
TPH, tons per hour
TPY, tons per year
VOC, volatile organic compounds

Compressor Engine [SCC 2-02-002-53] Single Engine Emission Calculations

Engine Output Capacity: 1680 bhp [Design Maximum]
Fuel Input: 13.23 MMBtu/hr [Design Maximum]*
Hours of Operation: 8760 hours/year

** Basis: 7,876 Btu/bhp-hr - Waukesha Operating Data Sheet, Ref. Sheet 6124-76, January 02 (submitted with AQP application #3301-00)*

Particulate Emissions (uncontrolled):

PM_{10} Emissions (filterable):

Emission Factor 0.0095 lb/MMBtu [AP- 42 Table 3.2-3, 7/00]
Calculations (0.0095 lb/MMBtu) * (13.23 MMBtu/hr) = 0.13 lbs/hr
(0.13 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) = 0.55 TPY

PM Emissions (condensable):

Emission Factor 0.00991 lb/MMBtu [AP- 42 Table 3.2-3, 7/00]
Calculations (0.00991 lb/MMBtu) * (13.23 MMBtu/hr) = 0.13 lbs/hr
(0.13 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) = 0.57 TPY

Total PM_{10} Emissions: (All PM assumed to be ≤ PM_{10})

Calculations PM10 (filterable) + PM (condensable) = 0.68 lbs/hr
(0.68 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) = 1.12 TPY

$PM_{2.5}$ Emissions (filterable):

Emission Factor	0.0095 lb/MMBtu	[AP- 42 Table 3.2-3, 7/00]
Calculations	(0.0095 lb/MMBtu) * (13.23 MMBtu/hr) =	0.13 lbs/hr
	(0.13 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =	0.55 TPY

Total $PM_{2.5}$ Emissions: (All PM assumed to be ≤ $PM_{2.5}$)

Calculations	PM2.5 (filterable) + PM (condensable) =	0.26 lbs/hr
	(0.26 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =	1.12 TPY

CO Emissions (controlled):

Emission Factor	1.20 gram/bhp-hr	[BACT Determination]
Calculations	(1.2 g/bhp-hr) * (1680 hp) * 0.002205 lb/gram) =	4.44 lbs/hr
	(4.45 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =	19.47 TPY

NO_x Emissions (controlled):

Emission Factor	1.00 gram/bhp-hr	[BACT Determination]
Calculations	(1.00 g/bhp-hr) * (1680 hp) * 0.002205 lb/gram) =	3.70 lbs/hr
	(3.70 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =	16.21 TPY

SO_2 Emissions (uncontrolled):

Emission Factor	0.000588 lb/MMBtu	[AP- 42 Table 3.2-3, 7/00]
Calculations	(0.000588 lb/MMBtu) * (13.23 MMBtu/hr) =	0.01 lbs/hr
	(0.01 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =	0.03 TPY

VOC Emissions (controlled):

Emission Factor	0.50 gram/bhp-hr	[BACT Determination]
Calculations	(0.50 g/bhp-hr) * (1680 hp) * 0.002205 lb/gram) =	1.85 lbs/hr
	(1.85 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =	8.10 TPY

Hazardous Air Pollutants (uncontrolled):

Emission Rate = Emission Factor * Fuel Input

$Emission\ Rate_{Annual}$ = Emission Rate * (8760 hrs/yr) * (0.0005 tons/lb)

Emission Rate, Pollutant Emission Rate in lbs/hr

Where: EF, Pollutant Emission Factor [AP - 42 Table 3.2-3, 7/00]

Fuel Input, Maximum Hourly Fuel Consumption Rate in MMBtu/hr [Maximum Input = 13.23 MMBtu-hr]

HAP Pollutant	Emission Factor [lb/MMBtu]	Emission Rate [lb/hr]	Emission Rate [TPY]
1,1,2,2-Tetrachloroethane	0.0000253	0.0003	0.001
1,1,2-Trichloroethane	0.0000153	0.0002	0.001
Acetaldehyde	0.00279	0.0369	0.162
Acrolein	0.00263	0.0348	0.152
1,3-Butadiene	0.000663	0.0088	0.038
Dichloropropene	0.0000127	0.0002	0.001
Benzene	0.00158	0.0209	0.092
Carbon Tetrachloride	0.0000177	0.0002	0.001
Chlorobenzene	0.0000129	0.0002	0.001
Chloroform	0.0000137	0.0002	0.001
Ethylbenzene	0.0000248	0.0003	0.001
Ethylene Dibromide	0.0000213	0.0003	0.001

Formaldehyde	0.0205	0.2712	1.188
Methanol	0.00306	0.0405	0.177
Methylene Chloride	0.0000412	0.0005	0.002
Naphthalene	0.0000971	0.0013	0.006
PAH	0.000141	0.0019	0.008
Stryene	0.0000119	0.0002	0.001
Toluene	0.000558	0.0074	0.032
Vinyl Chloride	0.00000718	0.0001	0.0004
Xylene	0.000195	0.0026	0.011
Hazardous Air Pollutant Totals ►		0.4289	1.879

TEG Dehydration Reboiler [SCC 3-10-002-28]

Fuel Input: 0.75 MMBtu/hr [Design Maximum]
0.0007708 MMscf/hr [Fuel Gas Analysis: 973 Btu/ft^3]
Hours of Operation: 8760 hours/year

Particulate Emissions (uncontrolled):

Total Particulate PM/PM_{10}/$PM_{2.5}$ Emissions:

Emission Factor 7.60 lb/MMscf [AP- 42 Table 1.4-1, 7/98]
Calculations (7.6 lb/MMscf) * (0.0007708 MMscf/hr) = 0.01 lbs/hr
(0.01 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) = 0.03 TPY

Total Particulate PM/PM_{10}/$PM_{2.5}$ Emissions (condensable):

Emission Factor 5.70 lb/MMscf [AP- 42 Table 1.4-1, 7/98]
Calculations (5.7 lb/MMscf) * (0.0007708 MMscf/hr) = 0.004 lbs/hr
(0.00 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) = 0.02 TPY

Total Particulate PM/PM_{10}/$PM_{2.5}$ Emissions (filterable):

Emission Factor 1.90 lb/MMscf [AP- 42 Table 1.4-1, 7/98]
Calculations (1.9 lb/MMscf) * (0.0007708 MMscf/hr) = 0.001 lbs/hr
(0.00 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) = 0.01 TPY

CO Emissions (uncontrolled):

Emission Factor 84.00 lb/MMscf [AP- 42 Table 1.4-1, 7/98]
Calculations (84 lb/MMscf) * (0.0007708 MMscf/hr) = 0.06 lbs/hr
(0.06 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) = 0.28 TPY

NO_x Emissions (uncontrolled):

Emission Factor 100.00 lb/MMscf [AP- 42 Table 1.4-1, 7/98]
Calculations (100 lb/MMscf) * (0.0007708 MMscf/hr) = 0.08 lbs/hr
(0.08 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) = 0.34 TPY

SO_2 Emissions (uncontrolled):

Emission Factor 0.60 lb/MMscf [AP- 42 Table 1.4-1, 7/98]
Calculations (0.6 lb/MMscf) * (0.0007708 MMscf/hr) = 0.0005 lbs/hr
(0.00 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) = 0.002 TPY

VOC Emissions (uncontrolled):

Emission Factor	5.50 lb/MMscf	[AP- 42 Table 1.4-1, 7/98]	
Calculations	(5.5 lb/MMscf) * (0.0007708 MMscf/hr) =		0.0042 lbs/hr
	(0.00 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.019 TPY

Hazardous Air Pollutants-Total (uncontrolled):

Emission Factor	0.00266 lb/MMBtu	[GRI-HAPCalc 3.01-External Combustion Device: Burner]	
Calculations	(0.00266 lb/MMscf) * (0.75 MMBtu/hr) =		0.0020 lbs/hr
	(0.002 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.00874 TPY

TEG Dehydration Still Vent Stack [SCC 3-10-002-27]

GRI-GLYCalc 4.0 Emission Report [AQP Application 3301-03, Appendix B; 01/13/2012]
Hours of Operation: 8760 hrs/year *

	VOC		Total HAPS	
	[lbs/hr]	[TPY]*	[lbs/hr]	[TPY]*
Regenerator Emissions	0.216	0.94	0.071	0.309
Flash Tank Off Gas	0.356	1.558	0.003	0.011
Pollutant Totals ►	0.57	2.51	0.07	0.32

Miscellaneous Facility Heaters

Fuel Input: 0.432 MMBtu/hr [Design Maximum - Combined Throughput]
0.000444 MMscf/hr [Fuel Gas Analysis: 973 Btu/ft^3]
Hours of Operation: 8760 hours/year

Particulate Emissions (uncontrolled):

Total Particulate PM/PM_{10}/$PM_{2.5}$ Emissions:

Emission Factor	7.60 lb/MMscf	[AP- 42 Table 1.4-2, 7/98]	
Calculations	(7.6 lb/MMscf) * (0.000444 MMscf/hr) =		0.003 lbs/hr
	(0.00 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.01 TPY

Total Particulate PM/PM_{10}/$PM_{2.5}$ Emissions (condensable):

Emission Factor	5.70 lb/MMscf	[AP- 42 Table 1.4-2, 7/98]	
Calculations	(5.7 lb/MMscf) * (0.000444 MMscf/hr) =		0.003 lbs/hr
	(0.00 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.01 TPY

Total Particulate PM/PM_{10}/$PM_{2.5}$ Emissions (filterable):

Emission Factor	1.90 lb/MMscf	[AP- 42 Table 1.4-2, 7/98]	
Calculations	(1.9 lb/MMscf) * (0.000444 MMscf/hr) =		0.001 lbs/hr
	(0.00 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.004 TPY

CO Emissions (uncontrolled):

Emission Factor	84.00 lb/MMscf	[AP- 42 Table 1.4-1, 7/98]	
Calculations	(84 lb/MMscf) * (0.000444 MMscf/hr) =		0.037 lbs/hr
	(0.04 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.16 TPY

NO_x Emissions (uncontrolled):

Emission Factor	100.00 lb/MMscf	[AP- 42 Table 1.4-1, 7/98]	
Calculations	(100 lb/MMscf) * (0.000444 MMscf/hr) =		0.044 lbs/hr
	(0.04 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.19 TPY

SO_2 Emissions (uncontrolled):

Emission Factor	0.60 lb/MMscf	[AP- 42 Table 1.4-2, 7/98]	
Calculations	(0.6 lb/MMscf) * (0.000444 MMscf/hr) =		0.0003 lbs/hr
	(0.00 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.001 TPY

VOC Emissions (uncontrolled):

Emission Factor	5.50 lb/MMscf	[AP- 42 Table 1.4-2, 7/98]	
Calculations	(5.5 lb/MMscf) * (0.000444 MMscf/hr) =		0.002 lbs/hr
	(0.00 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.01 TPY

Hazardous Air Pollutants-Total (uncontrolled):

Emission Factor	0.01187 lb/MMBtu	[GRI-HAPCalc 3.01-External Combustion Device: Heater/Boiler]	
Calculations	(0.011867 lb/MMscf) * (0.432 MMBtu/hr) =		0.0051 lbs/hr
	(0.005 lbs/hr) * (8760 hrs/yr) * (0.0005 tons/lb) =		0.022 TPY

V. Existing Air Quality

The WBI station is located approximately 1.5 miles north of Baker, Montana, in the NE¼ of Section 2, Township 7 North, Range 59 East, in Fallon County. Fallon County is considered unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

VI. Ambient Air Impact Analysis

The potential controlled emissions that result from the permit modification do not exceed any ambient air quality modeling thresholds; therefore, the Department did not conduct ambient air quality modeling for the proposed project. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
YES	**NO**	
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

Analysis Prepared By: D. Kuenzli
Date: January 31, 2012

DEPARTMENT OF ENVIRONMENTAL QUALITY
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Air Resources Management Bureau
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FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Williston Basin Interstate Pipeline Company
Baker Booster and Sandstone Compressor Station
P.O. Box 131
Glendive, MT 59330

Montana Air Quality Permit number: 3301-03

Preliminary Determination Issued: 02/15/2012
Department Decision Issued: 03/20/2012
Permit Final:

1. *Legal Description of Site*: The WBI station is located approximately 1.5 miles north of Baker, Montana, in the NE¼ of Section 2, Township 7 North, Range 59 East, in Fallon County.

2. *Description of Project*: WBI proposes to construct and operate an additional 1,680 bhp natural gas fired compressor engine at WBI's existing natural gas compressor station. With the installation of this unit, the facility will consist of seven (7) 1,680 bhp natural gas fired compressor engines, a glycol dehydration unit, and associated equipment. The facility purpose is to serve as a central compressor station which receives natural gas from nearby production field facilities and dehydrates and compresses the natural gas for transmission through the pipeline.

3. *Objectives of Project*: The proposed project would provide additional business and revenue for WBI by allowing the company to gather and transmit large quantities of natural gas. Natural gas would be received from nearby production field facilities and the gas would be dehydrated and compressed for transmission through a natural gas sales pipeline.

4. *Alternatives Considered*: In addition to the proposed action, the Department considered the "no-action" alternative. The "no-action" alternative would deny issuance of the MAQP to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because WBI demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in MAQP #3301-03.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in the permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites			X			Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

Minor impacts to terrestrial and aquatic life and habitats would be expected from the proposed project because deer, antelope, coyotes, geese, ducks, and other terrestrials would potentially use the area around the facility, and the addition of one engine to an existing facility would result in minor additional impacts to surroundings. Additionally, there are no known wetlands listed for the project site. Any construction would result in very little impact, if any, on the terrestrial and aquatic life and habitats because there would be minimal disturbance and any disturbance would be temporary and of short duration. Therefore, the Department believes that the proposed project would cause minor impacts to the area and overall, the impacts from this project to terrestrial and aquatic life and habitats would be minor.

B. Water Quality, Quantity, and Distribution

The current permit action would add one additional compressor engine to an existing facility consisting of five compressor engines. MAQP #3301-03 would expect a slight increase in emissions of all criteria pollutants at an existing site. However, emissions would be limited based on conditions and limitations in the MAQP. WBI would be required to add the appropriate control technology (NSCR/AFR) to minimize emissions. Unaltered hydrostatic test water may be discharged on-site. Water may be required for dust control, and additional water may be required for dust suppression during installation of equipment. There are no known surface water bodies on the site. The facility employs few people (two) and the amount of water for consumptive and non-consumptive use would be minimal. Therefore, the proposed permit would result in minor impacts to water quality, quantity, and distribution in the area.

C. Geology and Soil Quality, Stability, and Moisture

Impacts to the geology and soil quality, stability, and moisture from this facility would be minor because the permit action would impact a relatively small portion of land and the amount of resulting deposition of the air emissions would be small. There are no known unique geologic or physical features at the site. The soil stability in the immediate vicinity would be impacted by construction activities, but disturbances would be temporary. Installing the equipment, at an existing facility, would result in minimal impact on geology and soil quality, stability and moisture because the construction would be temporary and of short duration. Overall, the Department believes there would be minor impacts to geology, soil quality, stability, and moisture.

D. Vegetation Cover, Quantity, and Quality

The proposed project would result in minor impacts on the vegetative cover, quantity, and quality in the immediate area because only a small amount of property would be disturbed and the resulting deposition from air emissions would be relatively small. The new engine would be installed and operated at an existing facility. There are no known endangered or threatened plant species at the project site. This permit would result in minimal disturbance to the land and any disturbance would be temporary. Most of the newly disturbed areas would be restored to their previous status after installation of equipment. The corresponding deposition of the air pollutants on the surrounding vegetation would also be minor. Therefore, the proposed project would result in minor impacts on the vegetative cover, quantity, and quality.

E. Aesthetics

Impacts to the aesthetics of the area from this modification would be minor because the land use would predominantly remain the same. According to WBI, the nearest home or structure is located approximately one mile south of the facility.

Visible emissions from the facility would be limited to 20% opacity. There would not be an increase in odors with the change of equipment. The proposed change could result in some additional noise during construction. The area would receive very little increase in vehicle use as a result of the proposed project. Most vehicles would use the existing roads in the area on route to the roads established as part of the facility. Obviously during construction and installation of the proposed engine at the existing facility, there might be a noticeable increase in traffic; but any additional increase in traffic would be temporary.

Impacts to the aesthetics of the area from the project would be minor because of the industrial nature of the area, the relatively low visibility and minimal noise from the addition of the compressor engine. Therefore, the Department believes that aesthetics in the area would only experience minor impacts.

F. Air Quality

The Department determined, based on the allowable emissions this facility may emit that the impacts from this permitting action will be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

The air quality classification of the immediate area is “Unclassifiable/Attainment” for all pollutants (40 CFR Part 81.327). For this permit action, the Department ran some preliminary modeling to demonstrate compliance with the NAAQS/MAAQS. Air emissions from the facility would be minimized by limitations and conditions that would be included in MAQP #3301-03. Conditions would include, but would not be limited to, BACT emission limits and

opacity limitations on the proposed engine and the general facility. In addition, based on previous analysis of sources of this type operating under similar conditions, the Department believes that the emissions resulting from the proposed engines exhibit good dispersion characteristics resulting in lower deposition impacts to the affected area. Since controlled potential emissions from the proposed station would exhibit good dispersion characteristics, the Department determined that controlled emissions from the source would not cause or contribute to a violation of any ambient air quality standard. Therefore, any impacts to air quality from the proposed facility would be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In an effort to identify any unique endangered, fragile, or limited environmental resources in the area, the Department contacted the Montana Natural Heritage Program, Natural Resource Information System (NRIS). In this case, the project area was defined by the section, township, and range of the proposed location with an additional 1-mile buffer zone. The NRIS search identified a single known species of special concern. The Greater Sage-Grouse, a vertebrate animal was listed as Sensitive. Due to the minor amounts of construction that would be required, the relatively low levels of pollutants that would be emitted, the Department determined that it would be unlikely that the proposed project would impact any species of special concern and that any potential impacts would be minor. Therefore, the Department believes there would be minor impacts to any unique, endangered, fragile, or limited environmental resources in the area.

H. Demands on Environmental Resource of Water, Air, and Energy

The proposed project would have minor impacts on the demands for the environmental resources of air and water because the permit action would be a source of air pollutants. However, as explained in Section 7.F of this EA, the Department determined that the project would place very minor demands on air, water, and energy in order to provide compression to facilitate the transportation of natural gas in the natural gas pipeline. Minor effects would be expected on resources of water, air, and energy.

I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites located near the project area, the Department previously contacted the Montana Historical Society, State Historic Preservation Office (SHPO). According to SHPO records, there are no previously recorded historic or archaeological sites within the proposed operational area of this facility. According to SHPO records, several cultural resource inventories have been done within the defined area and that a recommendation for an additional cultural resource inventory is unwarranted. It is unlikely that any cultural properties would be impacted by the proposed project and an additional cultural resource inventory would be unwarranted at this time. Overall, the Department determined that it is unlikely that the proposed project would have any impact on any historical and archaeological site.

J. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts on the physical and biological aspects of the human environment in the immediate area would be minor due to the relatively small size of the project and little construction activities associated with this project. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #3301-03.

8. The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores			X			Yes
B	Cultural Uniqueness and Diversity			X			Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities			X			Yes
G	Quantity and Distribution of Employment			X			Yes
H	Distribution of Population			X			Yes
		Major	**Moderate**	**Minor**	**None**	**Unknown**	**Comments Included**
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals				X		Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECENOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

Additional activity (vehicle traffic, construction equipment, etc.) would be noticeable during facility construction; however, compressor stations typically do not require day-to-day employees and once the facility is constructed, activities associated with the operation of the facility would be minor. The proposed project would take place in a relatively remote location. The proposed project would not cause a disruption to any native or traditional lifestyles or communities in the area because the land use would not be out of place given the industrial use of the surrounding area. Therefore, on impacts to social structure and mores would be expected.

B. Cultural Uniqueness and Diversity

The operation of a compressor station requires relatively few employees for normal operations and the current action would likely not result in any additional employees, therefore immigration of new people to the area for employment purposes would not likely occur. Further, the proposed activity would not alter the surrounding land use. Therefore, any impact on the cultural uniqueness and diversity would not be expected.

C. Local and State Tax Base and Tax Revenue

The proposed project would result in minor impacts to the local and state tax base and tax revenue because few, if any new employees would be expected as a result of constructing the facility. Further, the proposed project would necessitate relatively little construction and typically would

not require an extended period of time for completion; therefore, any construction related jobs would be temporary and any corresponding impacts on the tax base/revenue of a given area would be minor. In addition, compressor operations of this type are common within the local area, and this area of Montana in general; therefore, because the proposed station constitutes a common industrial entity, any impacts to the local and state tax base and tax revenue would be minor.

D. Agricultural or Industrial Production

The land at the proposed location is rural oil and gas production. The project would take place within the boundaries of an existing privately owned site. Because the permit action would result in minor changes to the existing facility, impacts to agricultural production would not be expected. The proposed project would have minor impacts to industrial production because an additional engine would be located at an existing industrial area. Overall, any impacts to agricultural or industrial production of the area would be minor.

E. Human Health

The proposed project would result in minor, if any, impacts to human health. As explained in Section 7.F of this EA, deposition of pollutants would occur; however, the Department determined that the proposed project would comply with all applicable air quality rules, regulations, and standards. These rules, regulations, and standards are designed to be protective of human health. Overall any impacts to public health would be minor.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed project would have minor, if any, impacts on access to recreational and wilderness activities because of the relatively remote location and the relatively small size of the facility. The proposed project would have minor impacts on the quality of recreational and wilderness activities in the area because the facility, while relatively small by industrial standards, would be visible and would produce noise. The proposed engine would locate at an existing, operational facility and the Department has determined that overall, any impacts to the access to and quality of recreational and wilderness activities in the area would expect to be minor.

G. Quantity and Distribution of Employment

No additional employment would likely occur as a result of the proposed activity, therefore any change to the quantity and distribution of employment would expect to be minor.

H. Distribution of Population

The proposed project would have minor, if any, impacts on the above social and economic resources because two permanent employees would be required for normal operations thereby resulting in relatively few, if any, new immigration to the area. In addition, temporary construction-related positions would result from this project but any impacts to the quantity and distribution of employment from construction related employment would be minor due to the relatively small size of the facility and the relatively short time period that would be required for constructing the facility. Overall, any impacts to the above social and economic resources in the area would be expect to be minor.

I. Demands for Government Services

There would be minor impacts on the demands for government services because additional time would be required by government agencies to issue MAQP #3301-03 and to assure compliance with applicable rules, standards, and conditions contained in MAQP #3301-03. The increase in vehicle traffic would occur primarily during facility construction because compressor stations typically do not require day-to-day employees. Therefore, vehicle traffic would be relatively minor due to the relatively short time period that would be required to construct the facility. Overall, any demands for government services to regulate the facility or activities associated with the facility would expect to be minor due to the relatively small size of the facility.

J. Industrial and Commercial Activity

The proposed project would be relatively small and would take place at a relatively remote location. Only minor impacts would be expected on the local industrial and commercial activity because the proposed project would represent only a minor increase in the industrial and commercial activity in the area.

K. Locally Adopted Environmental Plans and Goals

The Department is unaware of any locally adopted environmental plans or goals. The permit would ensure compliance with state standards and goals.

L. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project on the social and economic aspects of the human environment would be minor because few employment opportunities may result, state and local taxes might be generated from the facility but little change would result from the permit. Overall, the project would result in few additional jobs for the area. The emissions' increase that would result from this permit would be minimal and therefore would result in few cumulative or secondary impacts. In addition, the Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #3301-03.

Recommendation: No EIS is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permit action is for the construction and operation of a natural gas central compressor station. This EA assesses the impacts specific to the proposed project. MAQP #3301-03 would include conditions and limitations to ensure the facility would operate in compliance with all applicable air quality rules and regulations. In addition, there are no significant impacts associated with the proposed project.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office; Natural Resource Information System – Montana Natural Heritage Program.

Individuals or groups contributing to this EA: Montana Department of Environmental Quality; Montana Historical Society – State Historic Preservation Office; Natural Resource Information System – Montana Natural Heritage Program.

EA prepared by: D. Kuenzli
Date: January 31, 2012